

State of Rhode Island
Department of Administration / Division of Purchases
One Capitol Hill, Providence, Rhode Island 02908-5855
Tel: (401) 574-8100 Fax: (401) 574-8387

Solicitation Information
March 3, 2016

ADDENDUM # 1

RFP # 7550290

**TITLE: LANDSCAPE FOR NEW CHEMISTRY AND FORENSIC SCIENCE
CENTER, UNIVERSITY OF RHODE ISLAND**

Submission Deadline: Thursday March 10, 2016 at 11:30 AM (Local Time)

Note to vendors:

Attached is the sign in sheet from the mandatory pre bid conference held on 2/23/2016

Attached includes, Bid Form which must be used, questions received with responses and added and/or corrected specifications

**Tom Bovis
Interdepartmental Project Manager**

Interested parties should monitor this website, on a regular basis, for any additional information that may be posted



"MANDATORY" PRE-BID CONFERENCE SIGN IN SHEET

Mandatory Pre-bid Conference: Any vendor who intends to submit a bid proposal in response to this solicitation must have its representative attend this mandatory prebid conference, sign, and complete all required information on this Sign-In Sheet. Failure to comply with this requirement will result in the rejection of any bid proposal.

BID NUMBER: 7550290
 BID TITLE: Landscaping New Cemetery Rd
 PRE-BID DATE AND TIME: 3/23/14 2:PM

Purchasing Representative: DM B...
 Mandatory Pre-bid START TIME: 3:00 PM
 Mandatory Pre-bid END TIME:

COMPANY NAME	COMPANY REPRESENTATIVE	SIGNATURE	ADDRESS	CONTACT EMAIL	CONTACT PHONE NUMBER AND FAX NUMBER	PROPOSAL SUBMITTED (For Purchasing Use Only)
1. RI MOBILE EXPRESS BLOWER SERVICE	Alicia	[Signature]	1309 WARWICK ME WAREHOUS	info@rhodeislandmbl.com	401-782-6000	
2. YARD WORKS	CHRIS SEVER	[Signature]	1305 ATWOOD AVE WAREHOUS, RI 02888	YARDWORKS.CHRIS@GMAIL.COM	401-463-9133	
3. Boston Landscapes	Fred Felker	[Signature]	240 Ripon street W. 02888	ppag@centralmass.com	401-323-7580 401-942-7525	
4. C. Johnson Landscaping	Clara Johnson	[Signature]		Cjohnsonlandscaping.com	401-641-1487	
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University of Rhode Island
Landscape Project
New Center for Chemistry & Forensic Science
White Hall Florence Nightingale Garden
Kingston, Rhode Island

BID DOCUMENTS ADDENDUM No. 1

March 02, 2016

The attention of Bidders submitting Bid Proposals for the subject project at The University of Rhode Island is called to the following addendum to the **INVITATION TO BID**. The items set forth herein, whether of omission, addition, substitution, or clarifications are all to be included in and form a part of the proposal submitted.

This addendum modifies and becomes a part of The University of Rhode Island Landscape Project - New Center for Chemistry & Forensic Science and White Hall Florence Nightingale Garden – Bid Package dated 17 November 2015 as indicated below.

All work called for shall comply with requirements for similar work unless otherwise specified.

This Addendum includes the following:

GENERAL

This Addendum includes Landscape modifications to drawings and specifications. Drawing modifications may include new drawings, reissued drawings, and sketches showing revisions to existing drawings or written descriptions of revisions to existing drawings or specifications.

Notification to Bidders:

The Bid Due Date has been extended from March 10, 2016 at 11:30 AM to March 15, 2016 at 11:30 AM.

Procurement and Contracting Requirements:

SECTION 00 0110 – TABLE OF CONTENTS

Replace the existing Project Manual – Table of Contents with the revised attached Table of Contents that includes additional specification sections as part of this addendum.

SECTION 00 4100 – BID FORM

Include the BID FORM attached as part of this addendum.

General Requirements:

SECTION 01 2010 – PRICE AND PAYMENT PROCEDURES – Attachment A

Replace the existing Section 01 2010 with the revised attached Section 01 2010 that includes added allowances as part of this addendum.

Addendum No. 1
March 02, 2016

**URI Landscape Project
New Center for Chemistry & Forensic Science
White Hall Florence Nightingale Garden
Project No.: KC.G.CHEM.2009.001
Bid Package – November 17, 2015**

BID DOCUMENTS - ADDENDUM No. 1

LANDSCAPE – New Center for Chemistry & Forensic Science

Specifications:

No Revisions

Drawings:

L2.02 Landscape Materials Plan – Podium Plan Enlargement – Highlight Plaza Deck
Load Restriction as attached herewith as part of this Addendum.

LANDSCAPE – White Hall Florence Nightingale Garden

Specifications:

Include the following new issue specification sections, dated January 18, 2016, attached to and made part of this addendum:

SECTION 02 1100 – SITE PREPARATION
SECTION 02 1200 – EROSION CONTROLS
SECTION 02 1300 – TRENCH AND MISCELLANEOUS EXCAVATION
SECTION 02 2100 – EXCAVATION AND EMBANKMENT
SECTION 02 3100 – DRAINAGE PIPE
SECTION 02 3200 – DRAINAGE STRUCTURES
SECTION 02 4100 – CONCRETE SIDEWALKS
SECTION 02 8800 – CAST-IN-PLACE CONCRETE
SECTION 02 9000 – MEMORIAL AND SCULPTURE RELOCATION
SECTION 32 1313 – EXPOSED AGGREGATE CONCRETE PAVING

Drawings:

No Revisions

BIDDER QUESTIONS

Q1. What is the weight limit for the machinery on top of the plaza roof deck?

A1. *The maximum weight is 5,000 lbs. Prior to any equipment/vehicle being driven on the plaza, protective plywood should be placed to protect the existing pavers. Equipment/vehicles should not spin in place – only forward and backwards progression so as to not dislodge the pavers. A sketch has been included highlighting the plaza area subject to these restrictions.*

Q2. On sheet L3.01 on the north side of the Chafee Social Science Center and north of the "red line" has a planting area that abuts the Center for Biotechnology and Life Science building in which 2 of the planting beds are filled with rip rap stone currently. However, the plan calls for plantings. How should be treat this area?

A2. *The rip rap stone was installed as a temporary measure to prevent erosion of the slope prior to placement of planting soil and planting design. The awarded landscape contractor will be responsible for*

Addendum No. 1
March 02, 2016

**URI Landscape Project
New Center for Chemistry & Forensic Science
White Hall Florence Nightingale Garden
Project No.: KC.G.CHEM.2009.001
Bid Package – November 17, 2015**

BID DOCUMENTS - ADDENDUM No. 1

complete removal of the rip rap and shall deliver stone to the University stockyard as directed. All stone shall remain the property of the University. All other miscellaneous debris shall be removed and disposed.

Q3. It was brought up at the pre-bid meeting that there are 2 piles of loam on campus (location ?) one being screened and one unscreened, in which we were told the other pile will be screened before the start of the job. Do we know how much loam and where it is located in relation to the site?

A3. It was indicated at the pre-bid meeting that there were 2 piles of loam for use with this Landscape Project. However, upon further review there will be only 1 pile of loam made available to this project; the stock pile of unscreened loam. The current plan is for the University to screen this loam and stock pile the screened loam on site adjacent to Flagg Road prior to the end of March 2016. It is estimated there is 750 cubic yards of loam available. This will need to be confirm with the awarded Contractor upon completion of the screening process. If additional screened loam is required, the Contractor shall provide the material upon approval by the University through the allowance established under this addendum. All placement of the screened loam to be included in the Base Bid.

Q4. On the planting list on sheet L3.01 under the comments many of plantings have the comments "purchased by Brian Maynard". Are we to assume he will purchase and delivered to the site and the contractor will install?

A4. All plantings to be "purchased by Brian Maynard" will be University provided. Lands and Grounds shall coordinate purchase and delivery schedule with the selected Landscape Contractor to facilitate timely planting and start of maintenance period and warrantee period.

END OF ADDENDUM NO. 1

Addendum No. 1
March 02, 2016

DOCUMENT 00 0110 - TABLE OF CONTENTS**DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS**

00 0010	Cover	
00 0050	Title Page	
00 0110	Table of Contents	03.02.16
00 0115	List of Drawings	
00 4100	Bid Form	03.02.16
00 5200	Agreement Form	
00 6140	Waiver of Lien Form	
00 7000	General Conditions	
00 7200	URI Standard Documents	

SPECIFICATIONS**DIVISION 01 - GENERAL REQUIREMENTS**

01 1000	Summary	
01 1010	Attachment A – Site Utilization	
01 1020	Attachment B – Fire Protection Impairment Form	
01 2000	Price and Payment Procedures	
01 2010	Attachment A - Price and Payment Procedures	03.02.16
01 2020	Attachment B - MBE Utilization Form	
01 3000	Administrative Requirements	
01 3010	Attachment A – Administrative Requirements	
01 3020	Attachment B – Small Project Changes	
01 3300	Submittal Procedures	
01 3310	Attachment A – Submittal Procedures	
01 3320	Attachment B – Small Project Changes	
01 4000	Quality Requirements	
01 4010	Attachment A – Quality Requirements	
01 4020	Attachment B – Small Project Changes	
01 5000	Temporary Facilities and Controls	
01 5010	Attachment A – Temporary Facilities and Controls	
01 5020	Attachment B – Small Project Changes	
01 6000	Product Requirements	
01 6010	Attachment A – Product Requirements	
01 7000	Execution Requirements	
01 7010	Attachment A – Execution Requirements	
01 7320	Waste Management	
01 7330	Attachment A – Waste Management	
01 7331	Attachment B – Small Project Changes	
01 7800	Closeout Requirements	
01 7810	Attachment A – Closeout Requirements	
01 7820	Attachment B – Small Project Changes	

New Center for Chemistry & Forensic Science

Section 01 5639	Temporary Tree and Plant Protection
Section 31 1316	Selective Tree & Shrub Pruning
Section 32 9100	Planting Preparation
Section 32 9200	Turf & Grasses
Section 32 9300	Plants
Section 32 9600	Transplanting

White Hall Florence Nightingale Garden

<u>Section 02 1100</u>	<u>Site Preparation</u>	<u>01.18.16</u>
<u>Section 02 1200</u>	<u>Erosion Controls</u>	<u>01.18.16</u>
<u>Section 02 1300</u>	<u>Trench and Miscellaneous Excavation</u>	<u>01.18.16</u>
<u>Section 02 2100</u>	<u>Drainage Pipe</u>	<u>01.18.16</u>
<u>Section 02 3200</u>	<u>Drainage Structures</u>	<u>01.18.16</u>
<u>Section 02 4100</u>	<u>Concrete Sidewalks</u>	<u>01.18.16</u>
<u>Section 02 8800</u>	<u>Cast-In-Place Concrete</u>	<u>01.18.16</u>
<u>Section 02 9000</u>	<u>Memorial and Sculpture Relocation</u>	<u>01.18.16</u>
Section 12 9300	Site Furnishings	
<u>Section 32 1313</u>	<u>Exposed Aggregate Concrete Paving</u>	<u>01.18.16</u>
Section 32 1373	Concrete Paving Joint Sealants	
Section 32 1714	Granite Curb Edging	
Section 32 8400	Planting Irrigation	
Section 32 9100	Topsoil and Lawn Planting Soil	
Section 32 9200	Turfs and Grasses	
Section 32 9300	Plants	
Section 32 9413	Landscape Edging and Drip Skirt	
Supplier Data Sheet	Concrete Mix Design	
Supplier Data Sheet	In-Ground Lighting – Philips Hadco IT216	
Supplier Data Sheet	Bollard Lighting – Philips Hadco DB21	
Supplier Data Sheet	Lamp Lighting – TFT Virgolite Virgo+ LS	
Supplier Data Sheet	Trench Grate Frame – Ironsmith 9000F08	
Supplier Data Sheet	Trench Grate – Ironsmith TWEED 9051-8	

END OF DOCUMENT

Solicitation #: 7550290

Solicitation Title: Landscape - New Center for Chemistry & Forensic Science

BID FORM

To: The Department of Administration, Division of Purchases
One Capitol Hill, Providence, RI 02908

Project: The University of Rhode Island
Landscape Project
New Center for Chemistry & Forensic Science
White Hall Florence Nightingale Garden
Kingston Campus

Bidder:

Legal name of entity

Address

Contact name

Contact email

Contact telephone

Contact fax

1. BASE BID PRICE

The Bidder submits this bid proposal to perform all of the work (including labor and materials) as described in the solicitation for this Base Bid Price, (including the costs for all Bonds, and Addenda).

\$ _____
(Base Bid Price *in figures* printed electronically, typed or handwritten legibly in ink)

(Base Bid Price *in words* printed electronically, typed or handwritten legibly in ink)

A. ALLOWANCES

The Base Bid Price *includes* the specified Allowances from Section 01 2000 in Division 01 of the Project Manual as follows:

1. Allowance No. 1 – Miscellaneous Utility Work: \$15,000.00
2. Allowance No. 2 – Erosion Repair: \$10,000.00
3. Allowance No. 3 – Screened Loam: \$10,000.00

Total Allowances: \$35,000.00

Solicitation #: 7550290

Solicitation Title: Landscape - New Center for Chemistry & Forensic Science

B. BONDS

The Base Bid Price includes the costs for all Bid and Payment and Performance Bonds required by the solicitation.

C. ADDENDA

The Bidder has examined the entire solicitation (including the following Addenda), and the Base Bid Price includes the costs of any modifications required by the Addenda.

All Addenda must be acknowledged.

Addendum No. 1, dated: _____.

Addendum No. 2, dated: _____.

Addendum No. 3, dated: _____.

2. CONTRACT TIME

If this Bid(s) is accepted, the Bidder will achieve substantial completion of all the Work by July 29, 2016. The Bidder shall include all premium time or additional staffing required to accommodate this schedule.

3. LIQUIDATED DAMAGES

The successful bidder awarded a contract pursuant to this solicitation shall be liable for and pay the State, as liquidated damages and not as a penalty, the following amount for each calendar day of delay beyond the date for substantial completion, as determined in the sole discretion of the State: **One Hundred Dollars (\$100.00) per day.**

BID FORM SIGNATURE(S)

This bid proposal is irrevocable for 60 days from the bid proposal submission deadline.

If the Bidder is determined to be the successful bidder pursuant to this solicitation, the bidder will promptly: (i) comply with each of the requirements of the Tentative Letter of Award; and (ii) commence and diligently pursue the work upon issuance and receipt of the purchase order from the State and authorization from the user agency.

The person signing below certifies that he or she has been duly authorized to execute and submit this bid proposal on behalf of the Bidder.

BIDDER

Date: _____

Name of Bidder

Signature in ink

Printed name and title of person signing on behalf of Bidder

01 2010 PRICE AND PAYMENT PROCEDURES - Attachment A

A. Allowances

1. Allowance No. 1 - Miscellaneous Utility Work: Include a Lump Sum of \$15,000. This allowance allows the Contractor with the approval of the Owner, to perform services and/or to retain the services of a qualified subcontractor to conduct utility repairs, relocations, and installations. In addition, the utility allowance shall be utilized for installing electrical service from a connection point within White Hall to the statue up-light, lantern, and light bollard fixtures. The cost for the fixture units shall not be included in the utility allowance but shall be provided in the lump sum price for Nightingale Courtyard. Electrical service connections for these fixtures shall be performed in accordance with all applicable electrical codes. The scope of service for use of the utility allowance will be developed by the Engineer and provided to the Contractor. The Contractor will then prepare and provide a firm quotation including all necessary subcontractors. The Owner will review the Contractor's submission and if satisfactory will authorize approval of the work.
2. Allowance No. 2 – Erosion Repair: Include a Lump Sum of \$10,000. This allowance allows the Contractor with the approval of the Owner, to perform unforeseen repairs to areas within the Project Limits that have erosion problems.
3. Allowance No. 3 – Screened Loam: Include a Lump Sum of \$10,000. This allowance allows the Contractor with approval from the Owner, to furnish and install additional screened loam should the material provided by the Owner be depleted prior to completion of the Project.

B. Testing Allowance

1. None. All testing costs included in Base Bid.

C. Unit Prices

1. None.

D. Alternates

1. None.

E. Payroll Reporting

1. Forms for the submission of Certified Payroll Records may be found from the Rhode Island [Prevailing Wage Website](#) in either PDF or Excel formats. These forms must be used on monthly submittals.

2. Identify Apprenticeship hours required under RIGL 37-13-3.1 for all contracts over \$1million in value. (N/A)

3. A Minority Utilization Report for minority subcontractors must be included. Use the form provided as Attachment B.

F. Warranty Inspection Retainage

1. One-half of one percent of the cost of the Work will be retained from Final Payment for this purpose.

END OF ATTACHMENT

The area highlighted in red indicates the plaza roof deck area subject to the 5,000 lbs. maximum weight restriction for equipment.

NEW CENTER FOR CHEMISTRY AND FORENSIC SCIENCE

MATERIALS LEGEND

- BRICKS
- CONCRETE
- PAINT
- ROOFING
- WOOD
- GLASS
- STEEL
- ... (various material symbols and descriptions)

STAIRS

1. TS 198.00
2. TS 191.20
3. TS 186.79
4. TS 182.64
5. TS 181.49
6. TS 178.99
7. TS 183.50
8. TS 183.44
9. TS 190.39
10. TS 187.38
11. TS 184.20
12. TS 181.24
13. TS 181.18
14. TS 178.18

NOTE FOR MATERIAL NOTES SEE L2.01

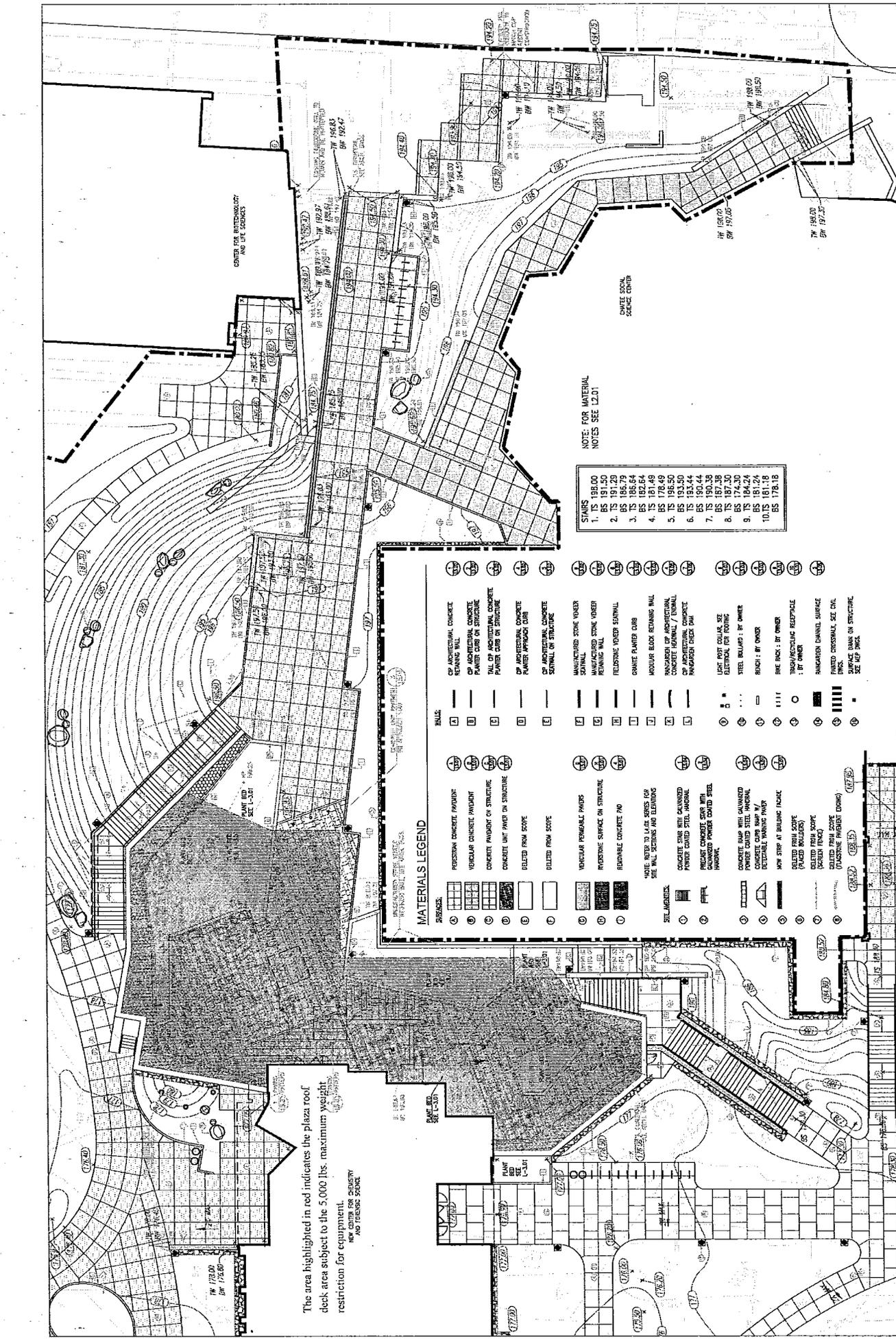
UNIVERSITY OF RHODE ISLAND
New Center for Chemistry & Forensic Science

Architect: [Firm Name]
 Consultant: [Firm Name]
 Bid Documents - Planting Bid Set

IAA
 CONSULTING ARCHITECTS
 100 WEST MAIN STREET, SUITE 100
 PROVIDENCE, RHODE ISLAND 02903
 PH: 401-863-1100
 FAX: 401-863-1101
 WWW.IAA-RI.COM

Project Number: 10000
 Drawing Title: LANDSCAPE MATERIALS PLAN - POOLING PLAN ENLARGEMENT
 Date: 11/19/2015

L2.02



**SECTION 021100
SITE PREPARATION**

PART 1 – GENERAL

1.1 Description

1.1.1 This work consists of the performance of actions that are required to clear and prepare the site for subsequent construction operations. These actions all have a common characteristic; they involve the removal and legal disposal of both designated vegetative materials and man-made objects. These actions include, but are not limited to the following: removal and disposal of concrete, sidewalks, pipes and underdrains, excess excavated materials, shrubs and plant materials and other obstructions or undesirable materials within the limits of disturbance. All such materials, objects and facilities shall be removed and legally disposed of.

The Contractor shall review site conditions prior to bid to assess ongoing construction work within the defined limit of disturbance.

PART 2 – PRODUCTS

2.1 Materials. Not applicable

PART 3 – EXECUTION

3.1 Construction Methods

3.1.1 Refer to the applicable subsections of Section 201 of the R.I. Standard Specifications for guidance on removal and disposal of the various site preparation actions.

END OF SECTION

SECTION 021200 EROSION CONTROLS

PART 1 – GENERAL

1.1 Description. This work includes the provision of temporary perimeter erosion controls and storm drainage protection erosion controls. Also included is the maintenance and cleaning and subsequent removal of all erosion controls. These controls shall be placed in reasonably close conformity with the layout and details indicated on the Plans and/or as directed by the University, all in accordance with these Specifications. The Contractor shall be responsible for providing and installing a minimum of 200 linear feet of filter sock.

1.1.1 Perimeter Controls will be provided by "Compost Filter Socks." The socks consist of a flexible mesh tube filled with composted material and staked to the ground with wooden stakes.

1.1.2 Catch Basin Inlet Protection will be provided by "Silt Sacks." They consist of a reusable fabric sack inserted in catch basins and held in place by placing the catch basin grate on the top four edges of the sock.

PART 2 – PRODUCT

2.1 Materials

2.1.1 Compost filter sock material shall be in accordance with AASHTO MP 9-06 (2007).

2.1.2 Silt sacks shall conform to the requirements of the BMP Store (800) 664-9223 or approved equal.

PART 3 – EXECUTION

3.1 Construction Methods

3.1.1 Compost filter socks may be either fabricated on site or delivered to the site. Compost filter socks shall be placed over the top of ground, wooden stakes shall be driven through the center of the filter socks to anchor them to the ground. To ensure optimum performance, heavy vegetation shall be cut down or removed, and extremely uneven surfaces shall be graded to ensure that the compost filter socks uniformly contact the ground surface.

.2 Filter socks shall be placed in a continuous line. Where ends intersect, they shall be sleeved to create and interlock with a two (2) foot overlap. After one section is filled and the ends tied off, the next section shall be pulled over the tied-off end of the previous section, to create a 2 foot overlap. The overlap shall be staked. The intersecting overlaps shall be constructed to ensure that stormwater does not break through at these intersection points.

.3 Removal of compost filter socks shall take place once excavation backfill is complete and the ground has been loamed and seeded. The mesh material shall be cut open and the mesh removed. In general, the compost filter material may be left in place. However the material shall be raked out leveled to surrounding grades, then seeded. Prior to such removal, however, all silt, mud and debris entrapped outside of the compost filter sock shall be removed and the area cleaned up.

3.1.2 Silt sacks. The grate of the catch basin shall be removed and the sack lowered into the catch basin. When properly installed, the grate shall be placed over the top ends of the sack, thereby holding it down.

.1 Each silt sack should be inspected after every major rain event. In the absence of a major rain event, the silt sacks should be inspected every 2 to 3 weeks.

.2 Silt Sacks shall be emptied when they are approximately half full.

.3 Silt sacks shall be removed and disposed of once backfill has been placed around the catch basin and adjacent areas have been loamed and seeded.

END OF SECTION

**SECTION 02130
TRENCH AND MISCELLANEOUS EXCAVATION**

PART 1 – GENERAL

1.1 Description. This work consists of excavation, dewatering, trench protection, and backfill of all materials required for the construction of storm drainage pipes, catch basins, underdrains, foundation waterproofing and insulation, and any other miscellaneous construction in reasonably close conformity with the dimension and details indicated on the Plans, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials. Not applicable

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I Standard Specifications apply.....

3.1.1 Excavation of Trench: Subsection 205.03.1

3.1.2 Trench Protection: Subsection 205.03.2

3.1.3 Dewatering: Subsection 205.03.4

3.1.4 Backfill and Compaction: Subsection 205.03.522

END OF SECTION

**SECTION 022210
EXCAVATION AND EMBANKMENT**

PART 1 - GENERAL

1.1 Description. This work consists of excavation and the satisfactory placement and compaction of all materials encountered within the limits of the work and which are necessary for the construction of the storm drainage, landscape, and electrical work of this project. Excavation and embankment shall be in reasonably close conformity with the dimensions and sections indicated on the Plans or as directed by the Engineer.

1.1.1 Earth Excavation. Earth excavation shall include the removal of suitable and unsuitable soils and the removal of boulders and rock fragments less than 1 cubic yard in volume, from the following areas:

- a. Within the design excavation sections.
- b. Beyond the design excavation sections of the side slopes where unsuitable materials are encountered.
- c. Beyond the design excavation section of embankments when unsuitable materials are encountered.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply.

2.1.1 Common Borrow; Subsection M.01.01

2.1.2 Gravel Borrow; Subsection M.01.09

2.1.3 Crushed Stone; Subsection M.01.09

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply.

3.1.1 Excavation –General: Subsection 202.03.1. First three paragraphs

3.1.2 Excavation of Unsuitable Materials: Subsection 202.03.1 (b)

3.1.3 Embankment Construction – General: Subsection 202.03.2

3.1.4 Compaction – General: Subsection 202.03.3

END OF SECTION

**SECTION 023100
DRAINAGE PIPE**

PART 1 – GENERAL

1.1 Description. This work consists of the construction of storm drainage pipe in reasonably close conformity with the dimensions and details indicated as the Plans, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials.

2.1.1 Pipe and fittings shall be ductile iron in accordance with Subsection M.04.02.1 Ductile Iron Pipe, push on joint with rubber gaskets

2.1.2 Bedding Material, Subsection 701.02.5, Class B (gravel borrow).

PART 3 - EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply;

3.1.1 Layout: Subsection 701.03.1

3.1.2 Trench Excavation: Section 02220

3.1.3 Bedding: Subsection 701.03.3, Class B

3.1.4 Laying Pipe: Subsection 701.03.04

3.1.6 Joining Pipe: Subsection 701.03.5

3.1.7 Trench Protection System: Subsection 701.03.6 Subparagraph (d)

END OF SECTION

**SECTION 023200
DRAINAGE STRUCTURES**

PART 1 – GENERAL

1.1 Description – This work consists of providing drainage catch basins, complete with frames, grates, and all appurtenant hardware and accessories at those locations and according to the details indicated on the Plans, all in accordance with these Specifications.

PART 2 – PRODUCT

1.2 Materials

2.1.1 Trench grate and frames shall be Ironsmith Tweed 9051-8 and 9000F-8 or approved equal.

PART 3 – EXECUTION

3.1 Construction Methods.

3.1.1 Testing and Inspection. Frames and grates shall be inspected both at the point of manufacture and at the project site. Any such unit exhibiting defects or damage that cannot be corrected to the complete satisfaction of the Engineer shall be removed and replaced by the Contractor at no additional cost to the State.

3.1.2 Other construction methods shall conform to the applicable requirements of Subsection 702.03.2 (b) of the Standard Specifications.

END OF SECTION

**SECTION 024100
CONCRETE SIDEWALKS**

PART 1 – GENERAL

1.1 Description.

1.1.1 This work consists of constructing concrete sidewalks on prepared gravel bases at the locations indicated as the Plans, all in accordance with these Specifications. Cement Concrete Sidewalks shall be to the widths indicated on the plans and in accordance with R.I. Standard 43.1.0.

PART 2 – PRODUCTS

2.1 Materials.

2.1.1 Concrete Sidewalks shall be constructed of Class XX Portland Cement Concrete. The Class XX concrete shall be proportioned as set forth in Table 2 of Subsection 601.03.1 of the Standard Specifications. The minimum compressive strength of the concrete shall be 4000 psi at 28 days.

2.1.2 Gravel Borrows shall conform to the requirement set forth in the Subsection M.01.02 of the Standard Specifications.

2.1.3 Reinforcing, when required, shall be wired-fabric that conforms to the requirements of Subsection M.05.02.1 of the Standard Specifications.

PART 3 – EXECUTION

3.1 Construction Methods.

3.1.1 Concrete Sidewalks shall be constructed in accordance with the applicable requirements of Subsection 905.03.3 of the Standard Specifications.

END OF SECTION

**SECTION 028800
CAST-IN-PLACE CONCRETE**

PART I - GENERAL:

1.1 DESCRIPTION:

- A. This work consists of providing the cast-in-place concrete elements for this project, all in accordance with the details indicated on the Plans and this Specification. The concrete elements involved include, but are not limited to, the following:
1. Drainage structures
 2. Concrete base for benches and relocated monuments
 3. Pavements
 4. Miscellaneous construction

PART 2 – PRODUCT

2.1 MATERIALS

- A. Portland cement shall conform to the requirements of Section M.02 of the R.I. Standard Specifications.
- B. Aggregates. Coarse and fine aggregates shall conform to the requirements of Subsections M.01.05 and M.02.02, respectively, of the R.I. Standard Specifications
- C. Classification & Proportioning
1. Concrete shall be Class **XX** in accordance with Table 1 of Subsection 601.01.1 of the R.I. Standard Specifications, and proportioned in accordance with Table 2 of Subsection 601.03.01 of the same standard specifications.
 2. Accordingly, all cast-in-place concrete shall develop a minimum compressive strength at 28 days of not less than 4000 pounds per square inch as determined by the Standard ASTM test of 6-inch diameter cylinders.
- D. Reinforcing steel shall conform to the requirements of Subsection M.05.01 of the RI Standard Specifications and shall be epoxy coated.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

- A. Construction methods shall meet the applicable requirements of Section 601.03 of the R.I. Standard Specifications.

END OF SECTION

**SECTION 029000
MEMORIAL AND SCULPTURE RELOCATION**

PART I - GENERAL:

1.1 DESCRIPTION:

- A. Under this item, the Contractor shall mount the Florence Nightingale Statue and Bench stored on campus as shown on the plans or as directed by the Engineer/Landscape Architect.

PART 2 – PRODUCT

2.1 MATERIALS

- A. The setting compound shall be Monument Setting Compound, or approved equivalent. The compound shall be delivered to the project site in the Manufacturer's original labeled container. Monument Setting Compound shall be a high quality Acrylic Latex Caulking Compound is used to seal between the monument and the base as manufactured by Derusha Supply, P.O. Box 228, Beebe Plain, VT 05873, or approved equal.

- 1. Color shall be from the Manufacturer's standard colors that most closely conform to the colors of the monument stone, as selected by the Engineer/Landscape Architect.

- C. Anchoring: Aluminum Dowel Pins shall be used between the monument and base to retain both components in a fixed upright position as well as preserve alignment. Size of dowel pins to be determined upon removal of monument from base. Contractor to provide shop drawings for approval by the Engineer/Landscape Architect.

PART 3 EXECUTION

3.1 CONSTRUCTION METHODS

- A. The Contractor shall carefully remove the existing memorials and Florence Nightingale sculpture and bench from their place of storage and protect all components from damage. All surfaces shall be thoroughly cleaned to the satisfaction of the Engineer/Landscape Architect.
- B. During removal, relocation, and placement, the Contractor shall protect the memorial, bench and sculpture from damage, discoloration, or staining. Following placement, the Contractor shall protect all items until completion

and acceptance of the contract. Any damage to the memorial, bench or sculpture prior to final acceptance shall be repaired to the satisfaction of the Engineer/Landscape Architect or the monument replaced at the Contractor's expense.

- C. Unless otherwise approved or recommended in writing from the setting compound manufacturer, the compound shall not be installed at temperatures below 44 degrees F or above 84 degrees F.
- D. All surfaces adjacent to the areas where the setting compound is to be applied shall be protected with nonstaining removable tape and other approved coverings to prevent soiling or staining from droppings. Prior to compound installation all dirt and other foreign matter shall be removed. The method of cleaning and preparing the work surfaces shall be as recommended by the manufacturer and as approved by the Engineer/Landscape Architect.
- E. 1" plastic setting cushions or wedge lead shall be placed approximately 3/4" from each corner of the Granite Monument prior to the placement and installation of the setting compound.
- F. The compound shall be placed to a depth between 1/4 and 1/2" with no voids or gaps permitted. The setting compound shall not be installed on surfaces that contain frost or moisture.

END OF SECTION

**SECTION 321313
EXPOSED AGGREGATE CONCRETE PAVING**

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
 - 1. Courtyard.

1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, expansive hydraulic cement, fly ash, and other pozzolans, ground granulated blast-furnace slag.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete pavement mixture. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Samples: 10-lb. sample of exposed aggregate. Information from aggregate supplier indicating source, type, color, and gradation of aggregate shall accompany sample.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced installer who has completed pavement work similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications:
 - 1. Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 2. Manufacturer certified in according to the National Ready Mix Concrete Association's Plant Certification Program.

- C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated as documented according to ASTM E 548.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
- E. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.
- F. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.
 - 1. Build a 4' x 4' mockup on site. If location not indicated, as directed by Owner's representative.
 - 2. Notify Owner's representative seven days in advance of dates and times when mockups will be constructed.
 - 3. Obtain approval from Owner's representative before starting mockup construction.
 - 4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
 - 5. Demolish and remove approved mockups from the site when directed by Owner's representative.
- G. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section, "Project Meetings".
 - 1. Before submitting design mixes, review concrete pavement mix design and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with concrete pavement to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixes.
 - c. Ready-mix concrete producer.
 - d. Concrete subcontractor.

1.5 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

- A. Form Materials: Plywood, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth, exposed surfaces.
 - 1. Use flexible or curved forms for curves of a radius 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- B. Joint Dowel Bars: Plain steel bars, ASTM a 615/A 615 M, Grade 60 (Grade 420). Cut bars true to length with ends square and free of burrs.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. 1/2 inch steel bars 15 inch center.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:
 - 1. Concrete for exposed aggregate paving shall be Portland Cement ASTM C150, Type I, #920 Onyx Black. Color sample to be provided for approval.
- B. Exposed Aggregate: Exposed hard, sound, durable, and free of all deleterious materials and staining qualities. Provide aggregates from a single source.
 - 1. Store select seeding aggregates off the ground and protected from moisture.

2. Aggregate shall match color, size, and gradation of the aggregate used in the exposed aggregate sidewalks and pavement existing in the immediate vicinity of the Project.
3. Approved Suppliers:
 - a. Macera Brothers, North Scituate, RI – Blue Gray Pea Gravel
 - b. Cherenzia Construction, Westerly, RI – Blue Gray Pea Gravel
 - c. approved equal.
4. Water: Potable.

2.4 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.

2.5 RELATED MATERIALS

- A. Board Filler: #1 treated #1 Southern Yellow Pine.
 1. Board filler shall be free of defects which will impair their usefulness as expansion joint fillers.
- B. Joint Sealing Material: Pavement joint sealing material shall meet the requirements and specifications of **RIDOT item M02.10.4**.
- C. Acid: Acid for acid wash shall be 5-10 percent solution of muriatic acid. Acid solution shall be tested on aggregate to ensure that aggregate does not dissolve or discolor.
- D. Sealer: Methyl methacrylate acrylic resin suitable for sealing of exposed aggregate horizontal concrete surfaces. Sealer shall be subject to approval.

2.6 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 318, with the following properties:
 1. Exposed Aggregate Surface: Concrete to receive an exposed aggregate surface shall contain a minimum of 560 lb. of ASTM C 150 Type II Portland cement per cubic yard of concrete.
 2. Compressive Strength (28 Days): 4 000 psi.
 3. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.50.

4. Slump Limit: 5 inches, plus or minus 1 inch.
 5. Air Content: 6 percent plus or minus 1 percent.
 6. Aggregates used in base mix shall not be limestone.
 7. Aggregate size shall be a minimum of 3/8 inch and a maximum of 3/4 inch.
- B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb. /cu. yd.
- C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions. Color to be SOLOMON Color #920 Slate Gray.
- D. Materials Distribution Chart:

MATERIALS DISTRIBUTION

SIEVE	STONE	SAND	PASTE	TOTAL	AGGR
1-1/2 "				-	-
1 "				-	-
3/4 "	100.0			-	-
1/2 "	75.0			9.4	14.1
3/8 "	19.0	100.0		21.1	31.7
# 4	3.0	98.0		6.6	9.9
# 8	2.0	90.0		2.7	4.0
# 16	-	66.0		7.7	11.6
# 30	-	40.0		7.5	11.3
# 50	-	18.0		6.4	9.6
# 100	-	6.0		3.5	5.2
# 200	-	1.0	100.0	1.4	2.2
# 325	-	-	98.8	0.7	0.4
Liquid	-	-	66.8	10.7	-

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete in accordance with ACI 318 Section 5.3 Field experience.

PART 3 - EXECUTION**3.1 EXAMINATION**

Exposed Aggregate Concrete

Section 321313-5

Addendum No. 1

- A. Proof-roll prepared sub-base surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- B. Remove loose material from compacted sub-base surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

- A. General: Comply with (Concrete Reinforcing Steel Institute's) CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

3.4 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.
 - 1. When joining existing pavement, place transverse joints to align with

previously placed joints unless otherwise indicated.

- C. Install dowel bars and support assemblies at joints where indicated.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool. Repeat grooving of contraction joints after applying surface finishes to a 1/4-inch (6 mm) radius. Eliminate grooving marks on concrete surfaces.
- E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete form-work installation, reinforcement steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. Remove snow, ice, or frost from sub-base surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten sub-base to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.
- D. Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery, at Project site, or during placement.
- F. Deposit and spread concrete in a continuous between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- H. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.

3.6 FINISHES

- A. Seeded Exposed Aggregate Finish: Immediately after floating, broadcast a single layer of aggregate uniformly onto the pavement surface. Tamp seeded aggregate into plastic concrete, and float to entirely embed aggregate with mortar cover of 1/16 inch.
1. Prior to the concrete placing operation, all select seeding aggregate shall be thoroughly washed so that it is free of all dust, dirt, and clay particles. The aggregate shall be in a damp condition but without free surface water at the time of seeding application. There shall be sufficient select aggregate on hand to complete the seeding once it has commenced.
 2. The seeding operation shall start immediately after the placement of concrete as described above. The select aggregate shall be carefully and uniformly seeded by suitable means so that the entire surface is completely covered with one layer of stone. Stacked stones and flat and slivery particles shall be removed at this time. The aggregate shall be embedded by suitable means. Care shall be taken to not over-embed and deform the surface. Under no circumstances shall areas lacking sufficient mortar be filled with small quantities of the base concrete mix.
 3. Without dislodging aggregate, remove excess mortar by lightly brushing surface with a stiff, nylon bristle broom.
 4. Fine-spray surface with water and brush. Repeat water flushing and brushing cycle until cement film is removed from aggregate surfaces to depth required.
 5. Work shall be planned so that the concrete placing and aggregate seeding procedures are coordinated with the capabilities of the washing and brushing crew.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection and ACI 305 R for hot-weather protection during curing.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 - 3. Surface: Gap below 10-foot-long, unlevelled straightedge not to exceed 1/4 inch.
 - 4. Lateral Alignment and spacing of Tie Bars and Dowels: 1 inch.
 - 5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch (6 mm).
 - 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: length of dowel 1/4 inch per 12 inches.
 - 8. Contraction Joint Depth: Plus 1/4 inch, no minus.
 - 9. Joint Width: Plus 1/8 inch, no minus.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: The contractor shall engage a qualified independent testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement.
 - 1. Compressive-strength Tests: ASTM C 39; one set for each day's pour of each concrete

- class exceeding 5 cubic yards, but less than 25 cubic yards plus one set for each additional 50 cubic yards.
2. One specimen shall be tested at 7 days and two specimens at 28 days. One specimen shall be retained in reserve for later testing if required.
- B. Test results shall be reported in writing to Owner's representative, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive-strength tests shall contain:
1. Project identification name and number.
 2. Date of concrete batch in pavement.
 3. Design compressive strength at 28 days.
 4. Concrete mix proportions and materials.
 5. Compressive breaking strength.
 6. Type of break for both 7 and 28 day tests.

3.10 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- B. Drill test cores where directed by Owner's representative when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION